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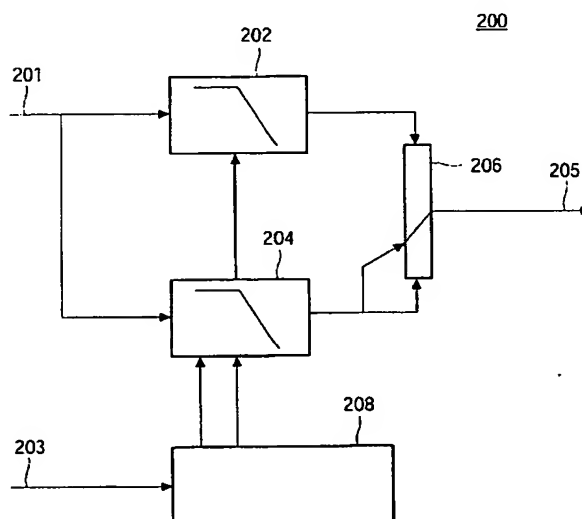
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**Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: **ADAPTIVE FILTERING**



(57) Abstract: An adaptive filtering device and method where at least one adaptive filter receives an input signal and a metering device receives an output of the at least one adaptive filter, monitors a characteristic of the output, such as power of high-frequency components, and forwards a correction signal in a feedback loop to adjust the characteristic of the at least one filter in order to change the characteristic of the output. An adaptive filtering device (200) and method where two low-pass FIR filters (202, 204) receive an input signal, a weighted adder (206) receives outputs from the two low-pass FIR filters and changes a weighting of each to produce filtered output data, and a controller (208) that receives a cutoff frequency (203), supplies the cut-off frequency to the two low-pass FIR filters, and supplies a signal to the weighted adder for varying the weighting of each of the low-pass FIR filters to switch therebetween.

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CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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## INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H03H21/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H03H H03G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 955 727 A (FORD MOTOR CO) 10 November 1999 (1999-11-10) abstract paragraph '0009! - paragraph '0010!; figure 1	1,3,4,11
A		2,12
X	US 3 889 108 A (CANTRELL BEN H) 10 June 1975 (1975-06-10) abstract column 3, line 13 - line 33; figure 3 column 4, line 54 - column 5, line 38	1,3,4,11
A		2,12
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
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- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

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## INTERNATIONAL SEARCH REPORT

International Application No  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 207 543 A (IZAKSON ILYA S ET AL) 10 June 1980 (1980-06-10) abstract column 4, line 27 - line 65; figure 1 column 5, line 14 - column 8, line 28; figure 4	1,11
A	-----	2-4,12
X	US 4 539 526 A (DAVIS MARK F) 3 September 1985 (1985-09-03) column 7, line 24 - column 8, line 30; figure 4 column 12, line 25 - column 13, line 54	1,11
A	-----	2-4,12

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2004/050452

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4,11-12

An adaptive filtering device having an adaptive filter and a band-pass or high-pass filter to monitor the amount of high frequency in the adaptive filter output; and related method of performing adaptive filtering.

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2. claims: 5-10,13-14

An adaptive filtering device having at least two low-pass FIR filters, a weighted adder and a controller controlling the cut-off frequency of the low-pass filters and switching between them; and related method of performing adaptive filtering.

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# INTERNATIONAL SEARCH REPORT

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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